

I. Listing of the Claims:

This listing of claims replaces all prior versions or listings of claims in the application:

1. – 128. (Cancelled)

129. (Previously presented) An isolated reverse transcriptase protein comprising SEQ ID NO:2.

130. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase may be used in the preparation of full-length cDNA.

131. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase comprises reverse transcriptase produced recombinantly.

132. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase is purified.

133. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase is purified and is greater than 90% pure.

134. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 1 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

135. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 5 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

136. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 7 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

137. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 10 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

138. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 15 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

139. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 25 ug of an aRNA from 100 ng of template RNA in a single amplification reaction.

140. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 1 ug of an aRNA from 10 pg of template RNA after a two-round amplification reaetion.

141. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 2 ug of an aRNA from 10 pg of template RNA after a two-round amplification reaction.

142. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 5 ug of an aRNA from 10 pg of template RNA after a two-round amplification reaction.

143. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a yield of greater than about 10 ug of an aRNA from 10 pg of template RNA after a two-round amplification reaction.

144. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a cDNA greater than about 6, 9 or 11 kilobases in a single cDNA synthesis reaction.

145. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a cDNA greater than about 6 to about 15 kilobases in a single cDNA synthesis reaction.

146. (New) The reverse transcriptase of claim 129, wherein the reverse transcriptase produces a cDNA greater than about 15 kilobases in a single cDNA synthesis reaction.

147. (New) The reverse transcriptase of claim 129, wherein the DNA polymerase activity is greater than about 200 Units per microgram.

148. (New) The reverse transcriptase of claim 129, wherein the DNA polymerase activity is between about 0.1 and 300 Units per microgram.

149. (New) The reverse transcriptase of claim 129, wherein the RNase H activity is between about 0.1 and about 25 percent of the wild-type RNase H activity.

150. (New) The reverse transcriptase protein of Claim 129, further comprising one or more mutations that replace at least one amino acid of the processivity domain and the nucleotide selection domain, with an alternative naturally occurring L-amino acid, the one or more mutations selected from the group consisting of: (1) a substitution of any of isoleucine, valine, and leucine for any other of these amino acids; (2) a substitution of aspartic acid for glutamic acid or vice versa; (3) a substitution of glutamine for asparagine or vice versa; (4) a substitution of serine for threonine or vice versa; (5) a substitution of glycine for alanine or vice versa; (6) a substitution of alanine for valine or vice versa; (7) a substitution of methionine for any of leucine, isoleucine, or valine and vice versa; and (8) a substitution of lysine for arginine or vice versa.

151. (New) The reverse transcriptase protein of claim 150, wherein the one or more mutations is selected from the group consisting of: (1) a substitution of any of isoleucine, valine, or leucine for any other of these amino acids; (2) a substitution of aspartic acid for glutamic acid or vice versa; (3) a substitution of glutamine for asparagine or vice versa; and (4) a substitution of serine for threonine or vice versa.

152. (New) A kit for nucleic acid synthesis, comprising, in a suitable container:
a reverse transcriptase protein of Claim 129; and
a reaction solution for the reverse transcriptase protein.

153. (New) The kit of claim 152, further comprising an insert that comprises information for using the reverse transcriptase protein.
154. (New) The kit of claim 152, wherein the reaction solution comprises a reverse transcriptase reaction buffer.
155. (New) The kit of claim 152, further comprising a primer.
156. (New) The kit of claim 152, wherein the reaction solution comprises a reverse transcriptase buffer.
157. (New) The kit of claim 152, wherein the reaction solution comprises a PCR buffer.
158. (New) The kit of claim 152, further comprising a mix of nucleotides.
159. (New) The kit of claim 152, further comprising containers comprising individual nucleotides.
160. (New) The kit of claim 152, wherein the reaction solution comprises a buffer for in vitro transcription.
161. (New) The kit of claim 152, further comprising a template purification column.
162. (New) The kit of claim 152, further comprising magnetic particles suitable for nucleic acid purification.
163. (New) A kit for nucleic acid synthesis, comprising, in a suitable container: a reverse transcriptase protein comprising SEQ ID NO:2; and a reaction solution for the reverse transcriptase protein.
164. (New) A kit for RNA amplification, comprising, in a suitable container: a reverse transcriptase protein comprising SEQ ID NO:2; an oligonucleotide comprising a transcriptional promoter region and oligo(dT) region; a DNA polymerase; and an RNA polymerase.

165. (New) The kit of claim 164, further comprising an insert that comprises information for using the reverse transcriptase protein.
166. (New) The kit of claim 164, further comprising a primer.
167. (New) The kit of claim 164, further comprising a reverse transcriptase buffer.
168. (New) The kit of claim 164, further comprising a DNA Polymerase buffer.
169. (New) The kit of claim 164, further comprising a mix of nucleotides.
170. (New) The kit of claim 164, further comprising containers comprising individual nucleotides.
171. (New) The kit of claim 164, further comprising a buffer for in vitro transcription.
172. (New) The kit of claim 164, further comprising a nucleic acid purification column.
173. (New) The kit of claim 164, further comprising a magnetic particle or particles suitable for nucleic acid purification.
174. (New) An RT-PCR kit comprising in one or more suitable containers: a reverse transcriptase comprising SEQ ID NO:2, two or more primers, nucleotides, a thermostable DNA polymerase and an RT-PCT buffer.
175. (New) The RT-PCR kit of claim 174, wherein the container comprising a reverse transcriptase further comprises one or more further reverse transcriptases.